The Effect of Spay /Neuter on Animal Intake And Killing (Euthanasia) in Oregon

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Introduction:

There is extensive national evidence that cat and dog sterilization results in decreased animal surrender and decreased shelter killing. In effect sterilization reduces shelter cost and animal misery. Large scale programs, such as those of New Hampshire, and national meta studies, such as those conducted by Firepaw of the Maddie's programs, strongly suggest that sterilization reduces shelter intake and the need for killing (euthanasia). For example cross section multiple regression analysis suggests that, on average, every 100 sterilizations reduces shelter intake by about 50 animals, 25 of which are eventually killed. Given that low cost sterilizations can be accomplished for $60 and that average Oregon shelter costs are now about $240 per animal (as estimated from Oregon Humane Association statistics) it is clear that sterilization is economic as well as humane. Nevertheless in spite of axiomatic logic and nationwide experimental evidence that sterilization reduces shelter surrenders, some still argue that there may be distinct regional cultural and economic differences that make these macro results locally questionable. Therefore this paper investigates the relationship between sterilization, intake and kill rates for a sample of Oregon shelters. Oregon does not require a standardized and centralized reporting of such data. Therefore the results discussed in this study are limited to the few shelters that have made the effort to keep accurate and consistent records thereby avoiding spurious results. The data cover the period 2000 to 2009. In science there never can be absolute proof. However it seems incumbent upon those who deny a significant negative sterilization/surrender relationship to offer rigorous evidence supporting their claim.

Sterilization and Shelter Intake:

The use of cross sectional analysis (sterilization and intake numbers across different localities) to evaluate the precise effect of sterilization on shelter intake is frustrated by other economic and social factors that may also influence shelter intake. Statistical control of these factors is difficult and requires large data sets, such as those mentioned in the introduction to this paper. However, Oregon is fortunate in that three counties, Deschutes, Jackson and Crook have compiled accurate data from 2000 to 2009 and therefore a time series analysis (how sterilization and intake numbers have varied by year for the same localities) of the impact of sterilization on shelter intake is possible. Time series has the advantage of eliminating the influence of diversity in economic and

social factors because it follows a region where demographic and sociographic differences are less problematic due to slow evolutionary change. Also, as opposed to some other larger more metropolitan Counties, Deschutes, Jackson and Crook counties have not been subject to significant intermittent impacts of temporary and transient sterilization agencies. Thus time series analysis can serve as a means of verifying the results of cross section analysis.

First difference statistical regression of shelter intake on sterilization rates indicates that an increase of 100 sterilizations in these three counties results, on average, in a decrease of 30 shelter intakes. This result is smaller than that found in larger cross sectional national studies where the impact was 50 reductions per 100 sterilizations. This result is statistically significant at the 2% level suggesting that there are only 2 out of 100 chances that this relationship is due to random chance. The first difference regression test used on the Oregon data is very rigorous because it eliminates spurious results due to serial correlation in the data (i.e. high values tend follow previous highs and vice versa). In particular a first difference regression test regresses changes against changes and not levels against levels. The fact that the significance level is as high as it is (2%) adds to the confidence of a negative relationship between sterilization and shelter intake. From a statistical perspective there appears to be little chance that the difference between the Oregon and National sterilization/intake relationship is related to significant economic or social differences. A regression comparison “Chow” test does not confirm any statistically significant (at the 10% or better level) difference in the National versus Oregon sterilization/intake relationships. However the 30 Oregon versus 50 National reduction difference is probably somewhat due to the nature of the Oregon counties sampled. In particular, the Oregon counties used in this study are more rural in nature. In more rural counties it would be expected that sterilization might have less impact on future intake because there is less relative opportunity for pet animals to encounter one another than would be the case in more densely populated metropolitan regions, such as Portland and Eugene/Springfield. In other words, the reduction value of 30 intakes per 100 sterilizations may very well represent a “worst case scenario”. At the very least it is very clear that sterilization reduces intake.

It is important to keep in mind that this estimated intake reduction is only for the one year following a given sterilization. Keeping in mind that an unsterilized animal would continue to have offspring, the humanitarian and economic benefit to society is magnified many times over. If a low cost sterilization cost $60 but it costs about $240 to impound an animal(Oregon average), the first 100 sterilizations cost $6000 but save at least $7,200($240*30) in the first year. Additional yearly savings would be realized as the sterilized animal stops reproducing and adding increased shelter costs in subsequent years. Keep in mind that an unsterilized cat or dog can produce hundreds of additional offspring and these offspring produce hundreds more of their own. Thus subsidized pet sterilization offers a monetary community return on investment that far exceeds that of most other expenditures.

Shelter Intake and Killing(Euthanasia):

The previous section has noted that sterilization reduces shelter intake and by logic should reduce the need for killing given that animal populations naturally reproduce at a

faster rate than human households can be created. Human populations increase at about 1% per year, but dogs and cats can easily reproduce by over 400% per year. Statistically, sample based regression studies indicate that there is less than 1 chance in 1,000 that kill numbers don't increase as impound numbers increase, both Nationally and in Oregon. In general, kill numbers in all Oregon counties rise proportionately with impound numbers but the relative kill rate tends to be very much higher in the less populous and poorer counties. The average kill rate for the 12 rural and poorer counties was 64% versus 34% for the 12 more populous and wealthier counties. This wide difference primarily reflects three factors. First it reflects the differing value placed on pet animal life in these two county groups because people primarily allocate tax and discretionary dollars on the basis of perceived value. Second it reflects educational level since incomes are very highly correlated with education and less educated people have been shown to be less sensitive to the need for pet animal sterilization. Third, the more rural counties have a smaller population of households to absorb their "human enabled" unsterilized pet population.

Euthanasia is simply a euphemism for the killing of a sentient (feeling and conscious) creature who is far more intricate and magnificently " engineered" than any product that science or human skill can make possible. After all, humans cannot create life, only pass it on, if they wish. Shouldn't one feel greater remorse or regret about killing a dog or cat than smashing one's computer or burning a painting by Rembrandt ? Hopefully human ethics are grounded in something more substantive than transient monetary value. To destroy creatures because they are "inconvenient" is surely not a hallmark of humanity or respect. However, Psychologists point out that humans pay less attention to mass killing, such as genocide and animal euthanasia, because people are subject to "Psychological Numbing". That is the human species has become mentally adapted to focus on close personal relationships and therefore death and tragedy on a more abstract scale is difficult to bring into personal focus and thus given less attention. A situation has to be personal to create a strong behavioral response. A known person or pet in immediate peril is psychologically more compelling than a picture of human or animal corpses or that anonymous carcass on the road.

In 2007 the average Oregon shelter killed about 42% of the hundreds of animals entrusted to its care (22 major public shelters surveyed). In 2000 the average kill rate for the same sample of major shelters was about 50%. These kill rates are about equal to National averages. In 2000 no surveyed Oregon shelter had a kill rate below 20% while in 2007 about 26% had kill rates below 20%. Thus it may be the case that some small progress is being achieved. However in some cases the low kill rate is most likely a statistical artifact caused by a shelter not accepting more animals than it can adopt out. (Lane County Animal Services appears to have become a party to this practice by requiring cats to be proven disease free thru the implementation of a lengthy "delayed surrender before acceptance" policy). In such cases it is most likely that the turned away animals are either killed or dumped at the roadside by their human "benefactors". Is such subterfuge the intention of the national "No Kill" shelter movement? We think not but unfortunately many people think superficial appearance denotes success.